IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No.	:	Not Assigned	Confirmation No. ____
Applicant	:	NHON TOAI QUACH	
Filed	:	April 13, 2004	
TC/A.U.	:	Not Assigned	
Examiner	:	Not Assigned	
Docket No.	:	42P5725C	
Customer No.	:	8791	

Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

REMARKS

Sir:

Prior to Examination of the above-identified application please consider the following remarks:

Remarks/Arguments begin on page 2 of this paper.

REMARKS

This application is a continuation of parent application 09/321/060 filed May 27, 1999.

In the parent application Examiner G. Lamarre issued an Office Action mailed January 29, 2003, allowing claims 22-25. In a Response mailed April 28, 2003, applicant amended the remaining claims to place the parent application in condition for allowance based on the subject matter of dependent claim 28 which the Examiner found to be allowable.

In the Office Action mailed January 29, 2003, the Examiner rejected claims 1-21 and 26-27 under 35 U.S.C. § 102(a or b) as being anticipated by Liu et al. "Adaptive source rate control for real-time wireless video transmission," Mobile Networks and Applications, pp 49-60, 1998. In the Response mailed April 28, 2003, applicant respectfully disagreed with the Examiner's assertion that Liu et al. anticipates any claim of the parent application. Applicant has filed this continuation application to further prosecute the claims pending in the parent application as of January 29, 2003. Continuation claims 1-21 are parent claims 1-21 and claims 22-23 are parent claims 26-27.

Rejection of Parent Application Under 35 U.S.C. § 102

The Examiner rejected claims 1-21 and 26-27 of the parent application under 35 U.S.C. § 102(a or b) as being anticipated by Liu et al. "Adaptive source rate control for real-time wireless video transmission," Mobile Networks and Applications, pp 49-60, 1998 (Liu I).

As per claim 1, the Examiner cited the hybrid automatic repeat request (ARQ) disclosed in Liu I on page 51, col. 1, last two paragraphs et seq. The Examiner reads the first code group on C_0 and the second code group on C_1 with C_0 and C_1 being different and C_1 providing both error detection or correction.

The Examiner bases this rejection on Liu I which provides "a brief summary of the [type-II hybrid ARQ] scheme." Liu I refers to Liu et al. "Performance of video transport over wireless networks using hybrid ARQ," Proceedings of ICUPC '96 (also IEEE Journal on Selected Areas in Communications, vol. 15, no. 9, pp.1775-86) (Liu II) for "a more complete description." Applicant respectfully submits that type-II hybrid ARQ as disclosed by Liu I does not disclose the claimed invention when properly understood in view of Liu II. Liu II describes type II hybrid ARQ on p. 1775, paragraph beginning at the bottom of col. 2 through the first full paragraph on p. 1776, col. 1. When the portion of Liu I cited by the Examiner is read in conjunction with Liu II, it becomes clear that the two codes, C_0 and C_1, both contain the same information block, I.

C_0 is a code that includes the information, I, and a cyclic redundancy check code (CRC) for error detection. C_1 is a half-rate invertible shortened Reed-Solomon (RS) code that provides a parity block which can be inverted to derive the same information, I, as included in C_0. The type-II hybrid ARQ proceeds as follows:

C_0 is received and the information I is accepted if the CRC of C_0 does not indicate an error;

otherwise, C_1 is received and the information I is obtained by inverting C_1 if the parity block does not indicate an error; and,

otherwise, the erroneous information I from C_0 and the parity block C_1 are combined to form a rate 1/2 RS code and error correction is performed to derive corrected information, I.

It is clear that C_1, properly understood, does not read on the claimed "second code group" because C_1 does not have "a second symbol different from the first symbol" and it does not provide "an error correction code for a third symbol that includes the first symbol and the second symbol." C_1 merely provides a parity block that can be inverted to obtain the same information I, a first symbol, included in C_0 and not a different second symbol. C_1 merely provides a parity block that can be combined with the erroneous information I obtained from C_0 to perform error correction for information I and not for additional information that was previously transmitted.

As per claim 2, the Examiner asserted that Liu I disclosed the third symbol further includes the error detection code. Applicant respectfully disagrees. As discussed above, Liu I does not disclose either a second or third symbol. Further, Liu I discloses error correction performed using the erroneous information I from C_0 combined with C_1. The CRC of C_0 is explicitly excluded from the error correction disclosed by Liu I.

As per claim 3, the Examiner asserted that Liu I disclosed a plurality of second code groups with each of the second code groups including an error correction code for a third symbol that includes the first symbol and the second symbol of the particular second group. Applicant respectfully disagrees. As discussed above, Liu I does not disclose either a second or third symbol.

Applicant respectfully submits that the Examiner misstates the disclosure of Liu I in the Examiner's rejection of claim 3 and many of the following claims. The Examiner states, "Upon receiving said invertible RS code, when no error is detected in said invertible RS or parity code via said appended CRC detection means, the receiver proceeds to allow correction of said formerly received information via utilization of said invertible RS or parity code to correct either the received information or the CRC detection means formerly attached thereto."

Applicant understands Liu I to discloses that when no error is detected in said invertible RS or parity code via said appended CRC detection means, the receiver proceeds to invert the RS or parity code to obtain the information I without reference to said formerly received information. Further, applicant understands Liu I to discloses that the receiver proceeds to allow correction of said formerly received information via utilization of said invertible RS or parity code to correct only the received information and that the CRC detection means formerly attached thereto is discarded once the CRC check has been performed on the formerly received information.

As per claim 4, the Examiner asserted that Liu I disclosed the error correction code provides error correction information for the first symbol if the error detection code indicates an error, and error correction information for the second symbol otherwise. Applicant respectfully disagrees. As discussed above, Liu I does not disclose either a second or third symbol.

As per claim 5, applicant relies on the patentability of the claims from which this claim depends to traverse the rejection without prejudice to any further basis for patentability of this claim based on the additional elements recited.

As per claim 6, applicant relies on the patentability of the claims from which this claim depends to traverse the rejection without prejudice to any further basis for patentability of this claim based on the additional elements recited.

As per claim 7, the Examiner cited the hybrid automatic repeat request (ARQ) disclosed in Liu I on page 51, col. 1, last two paragraphs et seq. The Examiner reads the first symbol and the error detection data on C_0 and the second symbol and the error correction data on C_1 with C_0 and C_1 being different and C_1 providing both error detection or correction.

C_0 is a code that includes the information, I, and a cyclic redundancy check code (CRC) for error detection. C_1 is a half-rate invertible shortened Reed-Solomon (RS) code that provides a parity block which can be inverted to derive the same information, I, as included in C_0. The type-II hybrid ARQ proceeds as follows:

> C_0 is received and the information I is accepted if the CRC of C_0 does not indicate an error;
>
> otherwise, C_1 is received and the information I is obtained by inverting C_1 if the parity block does not indicate an error; and,
>
> otherwise, the erroneous information I from C_0 and the parity block C_1 are combined to form a rate 1/2 RS code and error correction is performed to derive corrected information, I.

It is clear that C_1, properly understood, does not read on the claimed "the second symbol and the error correction data" because C_1 does not have "a second symbol different from the first symbol" and it does not provide "error correction data for the first symbol and the second symbol." C_1 merely provides a parity block that can be inverted to obtain the same information I, a first symbol, included in C_0 and not a different second symbol. C_1 merely provides a parity block that can be combined with the erroneous information I obtained from C_0 to perform error correction for information I and not for additional information that was previously transmitted.

As per claim 8, the Examiner asserted that Liu I disclosed generating error correction data further comprises generating error correction data for the error detection data. Applicant respectfully disagrees. Liu I discloses error correction performed using the erroneous information I from C_0 combined with C_1. The CRC of C_0 is explicitly excluded from the error correction disclosed by Liu I.

As per claim 9, the Examiner asserted that Liu I disclosed generating error correction data for the first symbol and one of the plurality of second symbols, and transmitting said one of the plurality of second symbols and said error correction data. Applicant respectfully disagrees. As discussed above, Liu I does not disclose either a second or third symbol.

Applicant respectfully submits that the Examiner misstates the disclosure of Liu I in the Examiner's rejection of claim 9. The Examiner states, "Upon receiving said invertible RS code, when no error is detected in said invertible RS or parity code via said appended CRC detection means, the receiver proceeds to allow correction of said formerly received information via utilization of said invertible RS or parity code to correct either the received information or the CRC detection means formerly attached thereto."

Applicant understands Liu I to discloses that when no error is detected in said invertible RS or parity code via said appended CRC detection means, the receiver proceeds to invert the RS or parity code to obtain the information I without reference to said formerly received information. Further applicant understands Liu I to discloses that the receiver proceeds to allow correction of said formerly received information via utilization of said invertible RS or parity code to correct only the received information and that the CRC detection means formerly attached thereto is discarded once the CRC check has been performed on the formerly received information.

As per claim 10, the Examiner asserted that Liu I disclosed the error correction data includes the error detection data. Applicant respectfully disagrees. The CRC of C_0 is explicitly excluded from the error correction disclosed by Liu I.

As per claim 11, the Examiner asserted that Liu I disclosed receiving a second transmitted code group having a second information symbol different from the first information symbol and error correction data for the first information symbol and the second transmitted code group. Applicant respectfully disagrees. Liu I does not disclose a second symbol nor receiving error correction data for a symbol that is not in the transmission that provides the error correction data.

As per claim 12, the Examiner asserted that Liu I disclosed that performing error correction includes performing error correction on the error detection data. Applicant respectfully disagrees. Liu I discloses error correction performed using the erroneous information I from C_0 combined with C_1. The CRC of C_0 is explicitly excluded from the error correction disclosed by Liu I.

As per claim 13, the Examiner asserted that Liu I disclosed receiving one of a plurality of second transmitted code groups with each of the second code groups including error correction data for the first information symbol and the second transmitted code group. Applicant respectfully disagrees. As discussed above, Liu I does not disclose either a second or third symbol.

As per claim 14, the Examiner asserted that Liu I disclosed the error correction data includes the error detection data. Applicant respectfully disagrees. The CRC of C_0 is explicitly excluded from the error correction disclosed by Liu I.

As per claim 15, the Examiner cited the hybrid automatic repeat request (ARQ) disclosed in Liu I on page 51, col. 1, last two paragraphs et seq. The Examiner reads the first code group on C_0 and the second code group on C_1 with C_0 and C_1 being different and C_1 providing both error detection or correction.

C_0 is a code that includes the information, I, and a cyclic redundancy check code (CRC) for error detection. C_1 is a half-rate invertible shortened Reed-Solomon (RS) code that provides a parity block which can be inverted to derive the same information, I, as included in C_0. The type-II hybrid ARQ proceeds as follows:

C_0 is received and the information I is accepted if the CRC of C_0 does not indicate an error;

otherwise, C_1 is received and the information I is obtained by inverting C_1 if the parity block does not indicate an error; and,

otherwise, the erroneous information I from C_0 and the parity block C_1 are combined to form a rate 1/2 RS code and error correction is performed to derive corrected information, I.

It is clear that Liu I, properly understood, does not disclose the claimed "a first register that receives a first number of bits; a second register that receives a second number of bits different from the first number of bits; an error detection generator coupled to the first register that generates an error detection bit for the first number of bits; [and] an error correction generator coupled to the first register and the second register that generates a set of error correction bits for the first number of bits and the second number of bits" because the error detection code included in C_0 and the parity block C_1 that provides error correction are both for the same information I. The claimed invention transmits a first information, the first number of bits, and the generated error detection code for that first information. The claimed invention then transmits a second information, the second number of bits, and the generated error correction code for the previously transmitted first information and the presently transmitted second information in combination as a third information.

As per claim 16, the Examiner asserted that Liu I disclosed "the error correction generator generates the set of error correction bits for the first number of bits, the second number of bits, and the error detection bit." Applicant respectfully disagrees. Liu I discloses error correction performed using the erroneous information I from C_0 combined with C_1. The CRC of C_0 is explicitly excluded from the error correction disclosed by Liu I.

As per claim 17, the Examiner asserted that Liu I disclosed a plurality of second registers that receives one of a like plurality of the second number of bits. Applicant respectfully disagrees. As discussed above, Liu I does not disclose receiving more than a single information for generating C_0 and C_1.

As per claim 18, the Examiner asserted that Liu I disclosed the error correction generator is further coupled to the error detection generator and the set of error correction bits includes the error detection bit. Applicant respectfully disagrees. Liu I does not disclose that the error correction code included in C_0 is used in any manner with the parity block C_1.

As per claim 19, the Examiner cited the hybrid automatic repeat request (ARQ) disclosed in Liu I on page 51, col. 1, last two paragraphs et seq. The Examiner reads the first

code group on C_0 and the second code group on C_1 with C_0 and C_1 being different and C_1 providing both error detection or correction.

It is clear that Liu I, properly understood, does not disclose the claimed "a second register that receives a second number of bits different from the first number of bits and a plurality of error correction bits for the first number of bits and the second number of bits" and "an error corrector coupled to the first register, the second register, the first data available indicator, and the second data available indicator, said error corrector to correct a second error in the first number of bits and the second number of bits, and to set the first and second data available indicators" because the error detection code included in C_0 and the parity block C_1 that provides error correction are both for the same information I. The claimed invention receives a first information, the first number of bits, and the generated error detection code for that first information. The claimed invention then receives a second information, the second number of bits, and the generated error correction code for the previously received first information and the presently received second information in combination as a third information. The presently received error correction information provides error correction the third information which is not transmitted in its entirety in either of the first or second transmission.

As per claim 20, the Examiner asserted that Liu I disclosed "said error corrector further corrects the second error in the first number of bits, the second number of bits, and the error detection bit." Applicant respectfully disagrees. Liu I discloses error correction performed using the erroneous information I from C_0 combined with C_1. The CRC of C_0 is explicitly excluded from the error correction disclosed by Liu I.

As per claim 21, the Examiner asserted that Liu I disclosed "the error corrector further corrects one of the first error in the first number of bits, the second error in the second number of bits, and the second error in the error detection bit." Applicant respectfully disagrees. Liu I does not disclose that the error correction code included in C_0 is corrected by the parity block C_1.

As per claim 22, applicant has revised this claim from previously presented claim 26 by deleting --if the first code indicates an error in the first code group,-- to make clear that the claimed computer data signal contains both the first code group and the second code group.

The Examiner cited the hybrid automatic repeat request (ARQ) disclosed in Liu I on page 51, col. 1, last two paragraphs et seq. The Examiner reads the first code group on C_0 and the second code group on C_1 with C_0 and C_1 being different and C_1 providing both error detection or correction.

It is clear that C_1, properly understood, does not read on the claimed "second code group" because C_1 does not have "a second symbol different from the first symbol" and it does not provide "an error correction code for a third symbol that includes the first symbol and the second symbol." C_1 merely provides a parity block that can be inverted to obtain the same information I, a first symbol, included in C_0 and not a different second symbol. C_1 merely provides a parity block that can be combined with the erroneous information I obtained from C_0 to perform error correction for information I and not for additional information that was previously transmitted.

As per claim 23 (previously presented as claim 27), applicant relies on the patentability of the claims from which this claim depends to traverse the rejection without prejudice to any further basis for patentability of this claim based on the additional elements recited.

As per claim 24, this claim has no direct counterpart in the parent application. Applicant respectfully submits that this claim is patentable over Liu I for the same reasons as discussed above for claim 2.

Applicant respectfully requests that the Examiner not reject claims 1-24 of this continuation application under 35 U.S.C. § 102(a or b) as being anticipated by Liu I.

Conclusion

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

Dated: April 13, 2004

By_____

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